In the claims:

Cancel claims 1-15, and amend the remaining claims to the following:

16.(original) A process for producing wear resistant coatings on the surface of a metal substrate, comprising the steps of:

a. first, applying a layer of paint having a dispersion of hard particles onto the surface;

b. then, placing over said paint layer a layer of braze alloy that in its molten state will wet the metal substrate and the hard particles;

c. then, heating said substrate and hard-particle paint layer and braze alloy layer to a temperature above the liquidus of the braze alloy but below the solidus of the substrate; and then

d. cooling the coated substrate to ambient temperature.

17.(currently amended) A process for producing wear-resistant coatings as recited in claim 16, in which the metal substrate is an alloy of iron, nickel, cobalt, aluminum, copper, or the refractory metals selected from the group consisting of tungsten, molybdenum, niobium, uranium, titanium, [or] and zirconium.

18.(original) A process for producing wear-resistant coatings as recited in claim 16, in which the hard particles are selected from the group consisting of: tungsten carbide, cobalt-bonded tungsten carbide, nickel-bonded tungsten carbide, chromium carbide, nickel-bonded chromium, cobalt-bonded chromium carbide, tantalum carbide, niobium carbide, and vanadium carbide.

19.(original) A process for producing wear resistant coatings on the surface of a metal substrate, comprising the steps of:

a. first, applying a layer of paint having a dispersion of hard particles and braze particles onto the surface;

b. then, heating said substrate and paint layer and braze alloy layer to a temperature above the liquidus of the braze alloy but below the solidus of the substrate; and then

c. cooling the coated substrate to ambient temperature.

20.(original) A process for producing wear resistant coatings on the surface of a metal substrate as recited in claim 19, wherein said hard particles are braze alloy particles including hard precipitates.

21.(original) A process for producing wear resistant coatings on the surface of a metal substrate as recited in claim 19, wherein said hard particles are different from the braze particles.

22.(original) A process for producing wear resistant coatings on the surface of a metal substrate as recited in claim 19, wherein said hard particles are different from the braze particles, and wherein said braze particles include hard precipitates.

23.(cancelled)

24.(currently amended) A process for producing wear resistant coatings on [a

concave surface] the surface of a metal substrate, comprising the steps of:

(a) applying a layer of wet adhesive to said [concave] surface,

(b) applying [dry] hard particles onto said wet adhesive layer [to embed the hard particles into the wet adhesive layer] to adhere the hard particles to the adhesive,

(c) drying the layer of adhesive with the [imbedded] adhered hard particles,

(d) applying another layer of wet adhesive over the dried layer of hard particles,

(e) applying [dry powdered] braze alloy powder onto said other layer of wet adhesive to [embed the braze alloy into] cause the braze alloy powder to adhere to the wet adhesive layer,

(f) drying the adhesive with [imbedded] adhered braze alloy particles;

(g) heating said substrate with the layers of hard particles and the braze alloy to a temperature above the liquidus of the braze alloy but below the solidus of the substrate, and then

(h) cooling the coated substrate to ambient temperature.

25.(currently amended) A process as recited in claim 24, wherein the [concave surface] metal substrate is an [iron-base] alloy [fan blade] of iron, nickel, cobalt, aluminum, copper, or the refractory alloys.

26.(currently amended) A process as recited in claim 24, wherein the [concave] surface is the interior of a [pipe] hollow cylinder.

27.(currently amended) A process as recited in claim 24, wherein the adhesive is applied to the interior of the [pipe] hollow cylinder by spraying.

28.(cancelled)

29.(cancelled)

30.(original) A process for hardfacing metal surfaces, comprising the steps of:

(a) first, wetting the surface of the substrate metal with a basic compound selected from the group consisting of hydroxides of alkali and alkaline earth metals, amines, and ammonium hydroxide;

(b) then, submerging the wetted substrate into in a paint comprising over 15 volume percent of fusible metallic hardfacing particles dispersed in a paint containing an unneutralized acid-containing thickening agent, wherein the pH of the paint is less than pH 7, said fusible metallic hardfacing particles being selected from the group consisting of nickel, cobalt, or iron base hardfacing alloy, and mixtures of hard particles with braze alloys;

(c) then, allowing the substrate to be submerged for sufficient time to allow the basic compound to diffuse into the paint to substantially increase the paint's viscosity;

(d) then, removing the submerged substrate from the paint to form a layer of paint in which the paint viscosity adjacent to the surface of the substrate is substantially higher than the viscosity of the paint alone;

(e) then, drying the paint to form a coating of particles on the substrate;

(f) then, heating the coated substrate in an inert atmosphere above the

solidus of said hardfacing alloy or braze alloy to metallurgically bond the hardfacing particles to the metal substrate.

31.(original) A process as recited in claim 30 in which the acid-containing thickening agent is an acid containing cross-linked acrylic emulsion copolymer.

32.(original) A process for hardfacing sheet steel, comprising the steps of:

(a) moving a flat horizontal steel sheet beneath sprayers;

(b) spraying a layer of adhesive onto said steel sheet ;

(c) then spraying the desired amount of hard particle powder onto the layer of adhesive;

(d) then spraying adhesive over the hard particle powder;

(e) then spraying the desired amount of braze alloy powder over the adhesive;

(f) then moving the sheet through an open-ended hydrogen sintering furnace that melts the braze, thus forming a metallurgically bonded composite of hard particles and braze on the top surface of a steel sheet.

33.(original) A process as recited in claim 32, wherein said steel is low carbon steel.

34.(original) A process as recited in claim 33, and further comprising the step of passing the hardfaced sheet through straightening rolls.

35.(new) A process for producing wear-resistant coatings as recited in claim

16, in which the hard-particle paint is comprised of particles of tungsten carbide less than 150 microns in size and has a Brookfield viscosity of over 50,000 centipoises at 0.5 rpm and over 2,000 centipoises at 100 rpm using the number 7 spindle.

36.(new) A process for producing wear-resistant coatings as recited in claim 16, in which the hard particles are carbide, and the layer of carbide paint is applied by spraying, brushing, dipping, rolling, or trowelling.

37.(new) A process for producing wear-resistant coatings as recited in claim 16, in which the braze paint is applied by spraying, brushing, dipping, rolling, or trowelling.

38.(new) A process for producing wear-resistant coatings as recited in claim 16, wherein the hard particles are carbide particles, and further comprising the step of drying the paint layer and applying mechanical pressure to compact the layer of carbide particles prior to heating.

39.(new) A process for producing a wear-resistant coating on a substrate, comprising the steps of:

applying a layer of paint including a dispersion of hard particles and braze alloy particles onto the surface of the substrate, wherein the ratio of the volume of braze particles to the volume of hard particles in the paint is from 0.9 to 9;

heating said substrate and paint to a temperature above the liquidus of the braze alloy but below the solidus of the substrate; and

cooling the coated substrate to ambient temperature.

40.(new) A process for producing wear-resistant coatings as recited in claim 24, in which the hard particles are selected from the group consisting of tungsten carbide, cobalt-bonded tungsten carbide, nickel-bonded tungsten carbide, chromium carbide, nickel-bonded chromium, cobalt-bonded chromium carbide, tantalum carbide, niobium carbide, and vanadium carbide.

41.(new) A process for producing wear-resistant coatings as recited in claim 24, and further comprising the step of applying mechanical pressure to compact the layer of dried adhesive with adhered hard particles.

42.(new) A process for producing a wear-resistant coating on the inside surface of a hollow cylinder, comprising the steps of:

applying paint containing hard particles and braze particles to the inside surface of said hollow cylinder by rotating said cylinder, inserting a tube into the inside of the hollow cylinder with a nozzle on the end of the tube, and then injecting the paint as the nozzle is withdrawn;

drying the paint while the cylinder is rotating;

rotating said coated cylinder as an inert gas ingresses through one end of the cylinder and egresses through the opposite end;

applying heat to the cylinder to cause the temperature of the braze particles to rise above their liquidus temperature; and

cooling the rotating cylinder.

43.(new) A process for coating the inside surface of a hollow cylinder as

recited in claim 42, wherein the paint includes a mixture of particles selected from the group consisting of carbides, nitrides, silicides, and borides with particles selected from the group consisting of nickel-based, cobalt-based, and iron-based hardfacing alloys.

44.(new) A process for producing a wear-resistant coating on the inside surface of a hollow cylinder, comprising the steps of:

applying a layer of paint containing hard particles to the inside surface of said hollow cylinder by rotating said cylinder, inserting a tube into the inside of the hollow cylinder with a nozzle on the end of the tube, and then injecting the paint as the nozzle is withdrawn;

drying the hard particle-containing paint while the cylinder is rotating;

applying a layer of paint containing braze particles to the inside surface of said hollow cylinder by rotating said cylinder, inserting a tube into the inside of the hollow cylinder with a nozzle on the end of the tube, and then injecting the paint as the nozzle is withdrawn;

drying the braze particle-containing paint while the cylinder is rotating;

rotating said coated cylinder as an inert gas ingresses through one end of the cylinder and egresses through the opposite end;

applying heat to the cylinder to cause the temperature of the braze particles to rise above their liquidus temperature; and then

cooling the rotating cylinder.

45.(new) A process for coating the inside surface of a hollow cylinder as recited

in claim 44, wherein the hard particles are selected from the group consisting of carbides, nitrides, silicides, and borides, and the braze particles are selected from the group consisting of nickel-based, cobalt-based, and iron-based hardfacing alloys.

Respectfully submitted,

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